

Abstract

A highly pure hexagonal boron nitride single crystal not influenced by impurities and capable of high-luminance short wave ultraviolet light emission reflecting inherent characteristics is provided; a high-luminance ultraviolet light emitting element is provided by using the above single crystal; and utilizing the above element, a simple compact low-cost long-lived far ultraviolet solid-state laser and far ultraviolet solid-state light emitting apparatus are provided. A highly pure hexagonal boron nitride single crystal having a single light emission peak in the far ultraviolet region of up to a wavelength of 235 nm is produced by melting said boron nitride crystal as raw material in the presence of a highly pure solvent under high-temperature and high-pressure, followed by crystallization. A light emitting element or a light emitting layer comprised of the obtained crystal is excited with electron beams, and the thus generated far ultraviolet light resonated or without resonance is taken out.

Selected figure : Fig. 2